SMSgt (Ret.) Rob Rosenberger

Twitter @rsnbrgr

This PDF / ~~ZIP / folder /~~ _____ contains first-generation scans and/or photographs of original UNCLASSIFIED historical papers in the public domain stored in the Air Force Historical Research Agency at Maxwell AFB, Alabama. SMSgt (Ret.) Rob Rosenberger accessioned the enclosed papers into his personal collection and he donates this effort to the PUBLIC DOMAIN.

EO 12958: EO 11652 UNDATED My accession: 4 OCT 23 Initials: RR

Title: TROOP CARRIER AIRBORNE OPERATIONS – FRENCH INVASION (D-DAY PLANNING)

Date(s): MAY – JUN 1944

Call: 248.271-11 Volume: —

IRIS: LCL 992

[X] ALL [ ] Selected Papers [ ] Except

[ ] copyrighted news stories; congressional bios; tabbed & oversized pages

#149

C. Equipment: CG4A and Horsa gliders were provided in sufficient quantity for training and operations. Prior to the operations, the wooden structure in the empennage of the Horsas was found to be deteorating and many man hours of labor were performed by British personnel to make repairs on sufficient Horsa gliders to cover operations. It is not believed that the wooden structure of the Horsa glider would stand up long in tropical climate. The payload established for the Horsa was 6900 lbs. After studying plans for the "Neptune" operations, the writer recommended that only CG4A gliders to be used for the entire operation for the following reasons:

1. Glider pilots of the 9th TCC did not have adequate training in the Horsa gliders to enable them to build up confidence in the capabilities and limitations of this aircraft. The flying characteristics of the Horsa are opposite from the CG 4A.
2. A study of the terrain of the proposed landing zones showed small fields with hedgerow of trees surrounding each field which was believed to be too small for landing Horsa gliders.
3. The Horsa glider has poor ground control.
4. A loaded Horsa has more drag than a double tow of CG 4A gliders and poor stability in rough air of formation flying at the towed airspeed by a C-47.
5. In formations a mixture of Horsas and CG 4A-s on tow slows up towed CG 4A's.
6. In making crash landings, the wooden structure of the Horsa does not give the protection that the steel fuselage of the CG 4A.
7. Unloading of Horsas require more effort and time than in the unloading of the CG 4A.

8. Many staff officers of higher echelons of commands were questioned and the writer was never able to find out why the Horsas were to be used other than it would permit the delivery of a prime mover, 1/4 ton truck, and a 57mm anti-tank gun in the same glider. This does not give the advantages as is first evident of landing the combination together especially where crash landings are likely. In crash landings, too often one or the other or both are damaged beyond use making the same condition that would exist if flown in separately. Too often "all the eggs were in one basket" but with the CG4A glider, the individual piece, jeep or anti-tank gun, had better opportunity of a safe delivery in the same or adjoining fields and with its characteristic of more rapid unloading, would permit quick assembly. The ground forces should be trained so that any crew of field piece whether both are carried in the same glider or separate gliders can be employed with any prime mover.

9. Sufficient CG4A gliders were available to meet the entire glider committment of the operations.

The CG4A gliders were assembled and modified with all that were to be used in the operation having the Griswald nose modification installed. The payload of the CG4a was set at 3750 lbs. It was recommended that this load be increased to 4500 lbs. or at least 4000 lbs. The tow planes were to be empty and it was recommended that supplies be loaded to the amount that could be dropped at a D Z after gliders released so that later requirements in subsequent supply drops could be lowered limiting the number of C47's exposed to enemy fire. This was not done.

D. Training: A flying training program was established to comply with the IX TCC's SOP and all available time was used to give the glider pilots training in loaded Horsas and CG4A's .(Training in loaded gliders had been neglected and is a necessity to give pilots the feel of their aircraft.)

A ground training program was planned and with time available all that possibly could be covered was given with fine cooperation on the part of airborne troops. This included ground tactics and evacuation of glider personnel as planned in forth coming operations.

E. All preparations were concluded with a combined maneuver known as "Eagle" exercise. Training in the Horsa glider continued up to the time of operations and were resumed as soon as possible after D-Day.

3. OPERATION "NEPTUNE".

A. Mission. Heavier weapons and equipment, supplies, Headquarter Units, medical and other service units, artillery and glider borne infantry of the 82nd and 101st Airborne Divisions were to be landed in 512 gliders, 292 CG 4A's and 220 Horsas. All glider missions were to be either dawn or dusk landings but just prior to the invasion, information was received that two panzer divisions had been moved into the area and to support the paratroopers 102 CG4A gliders were set up to carry in anti-tank guns and they were to land in the darkness immediately after the para-trooper drop in the early hours of D-Day. The night landings were not agreeable and it was recommended that they be held up until dawn. A possible 50% attrition was accepted by higher command and the night landings were set up.

B. Glider Sorties.

1. D-Day

Serial No. 27 of 52 CG 4A's were flown in by the 434th TC Group at Aldermaston and landed at approximately 04:00 in landing zone "E". These gliders were loaded with Det. Div. Hq. Co., Det. Div. Sign Co., Btry "A" 81st

ABAA Bn., Det. 326th AB Med. Co., and Det. 326th AB Engr. Bn., personnel and equipment.

Serial No. 28 of 52 CG 4A's were flown in by the 437th T C Group at Ramsburg and landed at approx. 04:07 in landing zone "O". These gliders were loaded with Batteries "A &C" 80th A B AA Bn, personnel and equipment.

Serial No. 29 of 32 Horsas were flown by the 434th TC Group at Aldermaston and landed at approximately 21:00 in landing zone"E". The gliders were loaded with Det. Div. Hq Co., Det. Div. Sig.Co., Btry "B" 81st ABAA Bn. personnel and equipment.

Serial No. 30 of 2 CG4A's and 18 Horsas were flown by the 437th TC Group at Ramsburg and landed at approx. 21:10 in landing zone "W". The gliders were loaded with Btry. "B" 80th ABAA Bn., 82nd AB Sig. Co., Hq H2 Co Sig Co., 82nd A/B Div., ASP-319 and 320 GE. FA Bn. personnel and equipment.

Serial No. 31 of 14 CG 4A's and 36 Horsas were flown by the 438th TC Group at Greenham Commons and landed at approx. 21:20 in landing zone "W". The gliders were loaded with 82AB Div. Sig Co., Hq. 82 AB Div., 307 AB Med Co., 82 Rcn. Plat., ASP (Prcht) personnel and equipment.

Serial No. 32 of 2CG 4A's and 48 Horsas were flown by the 435th TC Group at Membury and landed at approximately 23:00 in landing zone "W". The gliders were loaded with 319th Gl. Fa. Bn., 307 AB Engr. Bn. personnel and equipment.

Serial No. 33 of 12 CG 4A's and 38 Horsas were flown by the 435th T.C. Group at Walford and landed at approx. 23:10 in landing z one "W". The gliders were loaded with 320th GC. FA Bn. personnel and equipment.

(All of the above gloders in serials No. 29 thru 33 were to be landed before darkness but the last serials arrived later than scheduled and many of the gliders landed in the dark.)

2. D + 1

Serial No. 34 of 32 CG 4A's and 18 Horsas were flown by the 437th T C Group at Ramsbury and landed at approx. 07:00 in landing zone "W". The gliders were loaded with Co. "A" 307 AB Engr. Bn., 1st Bn, 325th Gl. Inf. personnel and equipment.

Serial No. 35 of 50 CG 4A's were flown by the 434th TC Group at Aldermaston and landed at approx. 07:10 in landing zone "W". The gliders were loaded with Co. "A", 307 AB Engr. Bn., 82nd AB Div., Arty., 82nd RCn. Plat., Hq. 325th Gl. Inf., Cmd Veh 508th Pl. personnel and equipment.

Serial No. 36 of 20 CG 4A's and 30 Horsas were flown by the 439th T.C. Group at Uppatt, and landed at approx. 09:00 in landing zone "W". The gliders were loaded with 2nd Bn. 325 Gl. Inf., and 2nd Bn 401 Gl. Inf. personnel equipment.

Serial No. 37 of 50 CG 4A's were flown by the 441st T. C. Group at Merryf. and landed at approximately 09:10 in landing zone "W". The gliders were loaded with 2nd Bn. 401 Gl, Inf. supply, 2nd Bn 325th Gl. Inf. supply, Sen. Co. 325 Gl. Inf. and Cmd. veh. 505, 507, 508 Prcht Inf.

Total gliders dispatched 512, 503 released at LZ, 9 lost before LZ, Troops landed on LZ 4047, Troops not landed on LZ 43, Number of artillery weaponslanded 110, number of Jeeps landed 281; lbs. of combat equipment and supplies landed 412, 477, average flying time per glider 2.2 hours.

4. SUMMARIZATION OF RESULTS OBTAINED IN GLIDER OPERATIONS.

A. During the period 1 June 1944 to 14 June 1944, the writer was given the following assignments:

1. Visit units of the 53rd Troop Carrier Wing, the wing given practically all glider operations, and advise and assist wherever possible.

2. Interrogate returning pilots and make a study of all written narratives of returning pilots to secure immediate information on any changes that should be made in subsequent operations. (See Annex No. 2 for this report.)

B. In the early morning of 15 June 1943, the writer was ordered to Normandy to visit airborne units in the field to make a study of the glider operations in the combat area and to study the evacuation of the gliders from the landing zones.

The writer was in the first plane, a C-47, to land on the newly prepared R and R airstrip at St. Mere Eglise and moved up and joined the Headquarters of the 82nd Airborne Division. He reported to Major General Ridgeway. From conversation with General Ridgeway, various members of his staff and a study of 169 reports submitted after landing by commanders of airborne personnel riding in gliders, these figures were obtained:

1. Total number of gliders dispatched for 82nd A/B Div.....428.
2. Approximately personnel dispatched in gliders 3600 airborne, 856 glider pilots. . . total 4456. (Approx. 10.4 personnel per Glider).
3. Of the 169 reports studied, 24 gliders landed in the landing zone and 145 outside. (This was due to improper signals between towplane and gliders, to forces on the ground putting up tees and smoke in different area than original landing zone which was still under enemy control and some changes in last minute briefings based on information received regarding areas showing intense enemy fire. The gliders were landed in concentrated groups about two to three miles NE of LZ and such landing in mass forces were able to assemble and go into action).
4. The 325th Glider Infantry Regt. was able to muster 1841 personnel out of a total of 2229 within two hours after landing and best the time of the parachute regiments in assembling.
5. In the 169 gliders reported eighty or 4.5% of airborne and air corps personnel were killed, 211 or 12% were injured or wounded. There was no definite way to tell how many of the above were killed, injured or wounded by the crash landings or the enemy's fire. The gliders were

subject to enemy fire both in the air and on the ground.

6. In the 169 gliders, 127 or 75% delivered equipment in serviceable condition, 15 or 8.8% delivered equipment slightly damaged, and 27 or 16.2% delivered equipment in unserviceable condition.
7. From the 169 reports, 89% of the Horsas and 50% of the CG 4A's were crashed upon landing.
8. Fourteen of the 428 gliders dispatched for the 82nd A/B Div. were still unaccounted for.
9. Average size of fields where gliders landed were 140 yds by 250 yds with hedgerows of trees averaging 50 feet surrounding the fields. By all hedgerows were ditches with an embankment of dirt and stones.
10. The paratrooper drops were scattered.
11. Approximately 50% of the resupply drop fell into enemy hands.
12. Much praise was given to the glider pilots both in the handling of their gliders and in later ground action.
13. No figures could be obtained on the paratroopers. But it was estimated that the 82nd division had only about 50% of it strength. left at that time.

In the afternoon of 17 June 1944, after the 82nd A/B Div. had captured St. Sauveur, the writer returned to the air strip at St. Mere Eglise which was in the landing zone area of most of the gliders.

Some of the gliders were inspected, and it is estimated by the writer, that approximately 15% of the Horsas and 50% of the CG 4A's after repairs are made, could be evacuated by aerial pickup and disassembly and movement to air strips and evacuated by tow. It was noted that all the American troops were cannibalizing the gliders so that the writer contacted the headquarters of the 7th Army Corps and requested all units be ordered to discontinue this practice. No personnel had arrived

to begin salvage and reclamation on the gliders. On the morning of 18 June, 1944 the writer returned to Headquarters IX, TCC to submit this report and ASC was contacted to rush the evacuation of gliders and equipment. On 20 June 1944, the writer was relieved from his temporary duty assignment in England and returned to the states reporting to Washington 21 June 1944 in compliance with his orders.

6. CONCLUSION

A. Generally, the operations were well planned and coordinated with all other phases of the operation. Capabilities and limitations of gliders and the level of proficiency of the personnel must be a major factor in the planning of any operation.

B. Large scale glider operations should be planned for daylight, dawn or dusk, landing. In the night landing of this operation, because of enemy opposition and darkness, very little was done in unloading and assembly before the daylight hours and the night landing decreases the possibility of maximum delivery of personnel and equipment.

C. Pathfinders definitely alerted the enemy and showed the need of much study in their employment. One team aborted and others were dropped away from their pinpoints and experienced difficulty in rounding up equipment and fighting their way to the designated area. The navigational aids to assist in flying the prescribed course were very helpful and pathfinder teams can be a good aid in guiding the column to the DZ or LZ but must not be relied upon too much. It is possible that by employing pathfinder airplanes dropping flares and radio equipment only as used in bombardment missions might prove of more advantage and in all cases three or four crews in each Troop Carrier Unit should be specially trained to lead formation. to the LZ or DZ with out any aid from the ground. In pathfinder employment, it is considered that gliders should receive much study for their employment as they will deliver all personnel and equipment at one place ready for immediate employment.

D. Maximum lift should be attained thereby restricting the number of aircraft exposed to enemy action and making it easier to provide necessary fighter cover.

E. Double tow could have been employed in this operation, as the range and altitude of flight was well within the limits of double tow. A double tow of CG4 A's gives less drag than the Horsa glider and at the same time gives a greater payload. Double tow would have shortened the column and limited the number of aircraft exposed.

F. Briefing is of more importance in an airborne operation than it is in bombardment and fighter missions and demands better photo reconnaissance and interpretation. If possible, verticals, obliques, stereopairs and moving picture of the approach to the LZ or DZ should be obtained. Glider pilots should be briefed thoroughly in both air and ground phases.

G. The need of glider detachments rather than echelons of troop carrier units was again in evidence in this operation. Due to marshalling air and ground units, supply and airbase facilities, the glider part of such operations will always fall to the unit, wing or group, and practically all glider tow will be performed by this unit. The old though of making the glider pilots a part of a combat team with the tow plane crew, is not practical and will never carry through in combat operation. It would not make any difference to glider pilots who tow them as long as the towplane crew can perform their part. It is of great importance, that the glider crews are trained and employed together. This is needed to secure the discipline required for the success of the operation both in the air and on the ground. Glider detachments should be attached intact to towing unit in numbers to fulfill the requirements of the glider lifts. In this operation, glider personnel were shifted as so many bodies instead of as complete units, consequently, some of the glider crews had never seen each other until a couple days before the mission and this showed up in air discipline and later ground employment. It also increased the supply and movement of personnel problems. This practice is detrimental to the high morale required of airborne operations

H. Evacuation of glider personnel and wounded airborne personnel demands much study. All methods by ground and air must be considered in the plan to be put into effect in the early part of the operation.

I. Plans for evacuation of gliders and equipment must cover reclamation of this equipment as early as possible.

J. When practical, glider borne troops should be landed first as they can assemble and take action with their full equipment quicker than paratroop units. In this operation, the paratroopers were scattered and were unable to round up a majority of their equipment bundles until gliders landed and glider personnel were used for this task.

K. Direct liaison between Troop Carrier Command and the Airborne forces should carry through all phases of the operation. TCC liaison personnel with communications direct to the rear should move with the first units, landing in gliders or parachutes. Army corps, combat groups, etc. should monitor for their information. This will provide proper personnel to alter DZ's or LZ 's for subsequent serials as required by the changing ground situation. It would have benefited greatly the landings of later glider serials and the success of the resupply drop in this operation.

L. The need of a glider capable of transporting a payload of 6,000 to 8,000 lbs. that can be unloaded from the rear and capable of landing slow and stop-quick was shown in this operation.

M. Glider personnel should be given the same training as power pilots through basic course, then basic and advance glider training concentrating on landings and with all training possible being performed with loaded gliders. Their combat employment with ground forces after landing in all glider operations to date indicate that glider personnel must be given all training possible in ground forces tactics and use of their weapons and equipment.

N. The glider phase of the invasion attained a remarkable success in face of all the difficulties and again indicates that task force commanders should use their imagination to the fullest in exploiting all the possibilities of glider employment.

a. EMERGENCY PROCEDURES:

(1) What arrangements have been made in case of mechanical failure either on take-off or assembly? It was suggested that alert crews of personnel be provided in addition to ambulance and crash equipment to assist in clearing the runway if failure c occurred on take-off. Incase of failure after take-off and during the assembly period, it was suggested that an area on the airdrome be provided, for forced landings, that will not interfere with the take-off. Also that stand by vehicles be provided to pick-loads of personnel and equipment for return to marshalling area so they might be loaded in reserve aircraft at the rear of the formation if the tactical situation warranted such action.

(2) What arrangements have been made for the coordination of ground and air-control? It was suggested that an Airborne Officer with proper authority work in the Air Control to permit prompt decisions in case of any emergency.

(3) (What action will be taken by pilots in case either plane or glider is knocked out of action by ground fire or air attack? It was suggested that a member of the airplane crew be stationed on duty at all times not just on take-off in the Astral dome. In case of the tow plane being put out of commission, the glider pilots are in position to take immediate action to clear the plane and formation and would then make a forced landing. Unless some one was in the Astral Dome observing the glider, it is not believed that the tow plane pilot could tell by action of the glider while flying in turbulent air of formation whether it had been put out of commission. If this occurs the tow plane must clear itself of the wreckage and either clear the formation and return home or go on with the formation which is governed by position in route. In case of one engine failure either frommechanical failure or enemy action, it was suggest d that the tow plane and glider first clear the formation then if still close to friendly territory for thw tow plane to pull the glider as close to friendly area as possible without endangering the tow plane and if close to the landing zone to

attempt to pull the glider as near to it as possible after first clearing the formation. In either case, as soon as the tow plane is free of the glider, it should return home immediately as it will become a straggler. Emphasis must be placed on man maintaining the double space between the two columns of echelon of two to permit the inside tow planes and gliders to clear the formation in case of emergency so as not to cause unnecessary mid-air collisions endangering the entire echelon and formation.

(4) Have any arrangements been made to camouflage gliders after landing? If it is desired to take some action to prevent enemy detection by aerial reconnaissance or observers at the landing zone the minimum action required would be to cover the plexiglass surface of the pilots compartment to prevent reflection of the sun.

b. PATHFINDER:

(1) Too much importance seem to be placed on the employment of Pathfinder aids. Previous maneuvers and combat employment would seem to make the emphasis secondary with priority being given to marking the route with aids and locating the landing zone by terrain features then if the Pathfinder team is successful, it will be an additional aid. Previous experience has been proven that, first the Pathfinder team might be dropped at the wrong place, second, they might become lost in the confusion of dropping and assemplying, third, they micht be overcome by the enemy either before the Pathfinder equipment is placed in position or after it is placed and the gliders have taken off.

c. ALTERNATE:

(1) What will be the procedure if after the gliders have departed, the paratroopers and Pathfinders are overcome by the enemy and the enemy has occupied the landing zone? An alternate landing zone should be provided if it is not intended to land regardless at the initial landing zone and attempt to overwhelm the enemy.

5. RECOMMENDATIONS:

a. A feeling seems to exist in some of the TCC units that they will not be called upon to carry out any glider missions. It is recommended th at instructions be issued for all units to continue glider operations as much as possible regardless

of initial phases of plans to prepare them for any eventuality.

b. It is recommended that at least one TC Group be instructed to perform double tow glider operations to enable its employment when maximum lift of all aircraft is demanded.

c. It is recommended that study and tests be made to increase the pay load of the CG-4A's from 3750 lbs. to 4500 lbs. to provide for maximum left and enable the airborne to transport in one CG-4A it's full crew and heavier weapons such as the .58 MM piece also toprovide for more reserve ammunition. Also that a load of at least 1000 lbs. be transported in the tow plane when towing a single CG 4A which will be dropped in a DZ after gliders are released.

d. It is recommended that at least one airborne engineer company (Construction) be held on alert for employment on short notice in preparing an air landing strip or repair of a captured enemy airdrome to permit hasty supply and evacuation by air landing C-47's.

e. It has been recommended that experienced Bomber and Fighter pilots and Artillery officers be secured to assist in preliminary briefing of TCC aircraft crews; tow plane and gliders which will give them first hand information on flak and fighter protection. It is felt that air crews have built a "bug a boo" on some of the enemy action they might encounter. Also it has been recommended that flight surgeons be instructed to spend a lot of time with the air crews to assist in removing doubtful personnel.

6. CONCLUSION:

a. The writer has had a nice reception at all units and find the morale of the men very good. The only complaint of any consequence was the old one of no promotions for glider pilots. The only means of correcting this is by securing authority to promote flight officers to second lieutenants within the flights of theglider echelon upon recommendation of the squadron commander. Also surplus glider personnel assigned to various units could be organized into glider echelon of units that do not

have glider echelons then attach the echelon to any unit as a reserve for duty and administration which would make available for use vacancies of the glider echelons of units that do not have glider personnel.

b. The writer believed from his visits, study of SOP's training and exercises observed, and discussions with both TCC units and British glider personnel that only the CG-4A's should be used in operations where landings have to be made in restricted fields to insure the most successful operation. Too much though seems to have been given to lift whereas the stress should be placed on the amound deposited on the ground safely and compactly to permit quick assembly and employment of as high a percentage of amount transported. It is believed that a double tow of CG-4A's would be a better operation than a single tow of Horsa gliders.

d. The writer intends with your permission to attend the glider exercise of the 52nd TC Wg set for 25 May 1944, then to return to the 53rd TC Wg to study assembly operations and observe glider operations in that area helping where ever he can. He has been invited to talk to the Staff of the Hq 101 Airborne Division also on 29 May 44.

1. This report is based upon conclusions drawn from a study of Glider pilot interrogation reports and personal interviews with glider pilots participating in the operations.

2. Figures given are approximations made from reports received and must be considered in that manner until final figures are submitted by proper reporting units.

3. It is definitely established that gliders although employed under hazardeous conditions, namely, landings in total darkness and in small fields with high obstacles, heavy ground fire and with gliders, Horsas, that crews did not have too much experience in flying, played a major part in successes attained so far in the invasion. They were helpful in three ways, first, their presence in the theater caused the enemy worry and necessitated action on his part to co nteract their employment, second, the very presence of their flying overhead demoralized enemy troops on the ground and boosted the morale of friendly troops, third, the timely delivery of heavier equipment, supplies, and personnel helped to turn the tide of battle.

4. CONCLUSIONS:

a. Planning:- The plans for glider employment for the most part were well founded and formed with following exceptions noted:

(1) Employment of Horsa gliders with characteristics unsuitable for landing a high percentage of payloads in type of terrain of the landing zones. Also, detrimental to morale of pilots who did not

have sufficient time to get the full experience necessary to build up their confidence in the glider.

(2) Too much thought was given to lift rather than the main factor of amount landed safely. Tests and experience has proven two WACO (CG-4A) gliders can be towed by one C-47 with less power than one Horsa. Maximum lift within safety limits of operation was not attained. Each C-47 with a single tow of one CG 4A could have carried supplies to be dropped on the pass over the landing zone. A double tow of two CG-4A's could have been employed. All CG-4A's could have been loaded with a payload of 4250 lbs. instead of 3750 lbs. authorized. All of this would limit the number of C-47's exposed to enemy action, both in the glider operation and resupply.

(3) Too Much reliance was placed on the ability of the paratroopers to secure the landing zones from the enemy.

(4) No arrangements for rapid communication from friendly troops on the ground to the troop carrier units operating subsequent serials and no standard operating procedure for troops on ground to alter landing zone when necessary to assure greater success in landing by avoiding enemy territory and fields with obstacles and mines. To assist in this, Air Liaison officers of Troop Carrier Command should go with

first wave of operation.

(5) Not enou h thought given to evacuation of glider personnel and wounded by securing areas suitable for preparation of air landing strips by aviation engineers. Lives were lost in moving glider pilots and wounded overland to beaches by snipers and enemy air action and time enroute.

The above indicates higher echelons of command not thoroughly indoctrinated in Troop Carrier operations and especially in capabilities and limitations of gliders.

b. Training:-Flying training given by units best possible while in theater within limits of time and equipment and directives from higher authority with exceptions of not enough flying with gliders loaded and landing in restricted areas. Glider pilots should be kept flying as much as possible to increase and maintain proficiency. Broader training in the flying schools covering all types of gliders and tactics. The ground training was the best under the circumstances, but more should be done to ensure good employment with airborne troops after landing. The glider pilots should work and train more with airborne units in loading, unloading, and ground tactics.

c. Equipment:- Supply agencies did all possible to get the latest and best for the operation. The following recommendations were almost unanimous:

(1) Personal clothing of glider pilots:

(a) Should be issued a paratroopers jump suit or

some similar combat uniform with plenty of pocket space for carrying ammunition, reserve rations, hand grenades, first aid kit, escape kit, and personal items, doing away with pouches and packs.

(b) Should be issued paratrooper boots or new army boot doing away with leggings which will give more support to ankles in crash landings and more comfort in later ground action.

(2) Personal equipment of glider pilots:

(a) A small compact gas mask is needed.

(b) A good compass should be issued.

(c) Each glider pilot should be authorized a 45 caliber pistol and in addition one small compact sub machine gun and one carbine should be authorized for issue to the team of pilot and co-pilot.

(d) Entrenching tools should be issued.

(3) Glider equipment:

(a) The Griswald nose modification was a great aid and protection.

(b) Difficulties were experienced in the inter-communication chiefly caused by not enough excess slack of wire on tow rope. More slack near the ends must be provided. Tow ropes with built in inter-com wire should be much better.

(e) Difficulties in disassembly of tail section of Horsa glider hampered unloading.

d. Briefing:-

(a) Proper information regarding obstacles was not given. Stereoscopic pairs and oblique photographs will give a more intelligent interpretation.

(b) Alternates for changes in ground situation not given. The paratroopers were not able or did not secure landing zones due to urgency of carrying out their assigned missions, and the glider pilots were informed that the Landing zones were in the hands of friendly troops which might have caused casualties because they did not take cover as quickly as they should have when subjected to ground fire after landing and attempting to unload. They should be briefed to take cover and orient themselves immediately upon landing.

(c) A more detailed ground map of landing area should be provided each glider pilot.

(d) If possible, moving pictures of terrain covering run in and landing zone should be provided for briefing, made from altitude of proposed flight.

(e) Some confusion seemed to exist as to whether each glider should be released upon signal from

tow plane or releases made to follow squadron glider leader into landing zone.

(f) Pass work for first day only given glider pilots, Pass works for at least three days should be given them.

(g) Glider pilots should not be briefed for any definite field or pattern for landing, but informed of most satisfactory apparent pattern and field, leaving it to the discretion of squadron glider leaders to make the final decision at time of release, then his squadron pilots should release and follow him.

e. Marshalling:- Marshalling seemed to be very satisfactory.

f. Forming and assembling:- Very few abortions were experienced and on those some confusion existed as to arranging substitute load or reloading and whether the straggler should be dispatched. Other difficulties were due to rough air and mixed tows of Horsas and CG-4A's.

g. Route:- No trouble in route. Navigational aids of markers helped.

h. Run-in:- Some difficulties were experienced by faster towing speeds after hitting landfall to landing zone and pull up to release altitudes. Release signals were given too early in several cases and columns did not split wide enough in some instances.

(NOTE: Several glider pilots observed that the tow planes that were knocked out of commission by ground fire were on the deck)

i. Release and patterns:- Some confusion existed on release signals as to whether release should be made on signal from tow plane or upon release of squadron glider pilot. Regardless of patterns designated, pilots made their own decisions and one outstanding incident was a squadron glider pilot leader changing field and pattern landing his entire squadron safely in an inundated field.

j. Ground fire;- Much ground fire was experienced on tow, in free flight, and after landing. There were a very noticeable small number of casualties from this fire while in flight. NO CASES HAVE BEEN NOTED WHERE EITHER PILOT OR CO-PILOT WERE WOUNDED TOO BADLY BY GROUND FIRE THAT WOULD HAVE PREVENTED THE LANDING OF THE GLIDER BY HIM. That brings up the question of advisability of using Co-pilots. To conserve glider pilot personnel against later losses in ground action as experienced out weighs use of co-pilots in CG 4A gliders where not too much pilot fatigue is experienced in a short flight. The flak-suits were very helpful against ground fire as well as boosting pilots morale.

k. Unloading:- Many loads were lost to ground fire after landing. Reports indicate glider borne troops not adequately trained in unloading under adverse conditions, crash landings and under enemy fire. Several loads were reported unloaded, but left near gliders which later drew

mortar fire destroying both glider and load which should have been further removed at time of unloading. Covering fire was not properly utilized to pen enemy down during unloading. If not sufficient personnel in equipment loads, other gliderborne troops should be instructed to cover area. It is a waste of equipment, aircraft and personnel not to provide for such action and should also be covered by training glider pilots and ground troops together.

1. Employment of glider pilots on the ground by airborne command.

   (1) There seemed to be a tendency for airborne commanders to employ glider pilots unnecessarily and hold large numbers of jobs that could be done by a few.

   (2) Glider pilots were high in praise of paratroopers, but had less faith in gliderborne troops.

   (3) Various used of glider pilots.

      (a) Combat action - patrol and attack

      (b) Guarding- Tank parks, CP's and P.W.'s.

      (c) Runners.

      (d) Work parties to round up supplies from gliders and dropped by parachute.

      (e) Assist Medical personnel in rounding up wounded and burying the dead.

      (f) Driving vehicles to supply dumps.

      (g) Evacuation of P.W.'s.

m. Evacuation: Enroute to beaches, on the beaches and ships they were subject to sniper, mortar and enemy aircraft fire. Evacuations and resupply might have been effected early by preparing air landing strips.

n. Return to home stations: Some trouble was experienced in being allowed to contact home station for transportation. Generally they received good treatment and priority for return home. Most all of personal equipment was turned over to forces on the beaches who had lost theirs in sinkings of landing crafts.

o. First aid and Hospitalization:

(1) Wounded glider pilots got good first aid by airborne Medical Corpsmen.

(2) Injured glider pilots are being evacuated to hospitals in the 12th and 15th Hospital Centers. (The writer visited glider pilots at the 192nd General Hospital and 53rd General Hospital. Interviewed Lt. Col. M. C. Murphy at the 53rd General Hospital. He was in good spirit. Major injury is a fractured right leg.

p. General:

(1) No report of tow rope failure due to material defect or enemy fire.

(2) Glider pilots often became separated from airborne and even their own co-pilots in the initial phase of ground action showing lack of organization and proper discipline under fire.

(3) Ground control of Horsa gliders as well as braking system very poor.

(4) Very little dependence should be placed on French natives.

(5) German Medical men are armed and assist in fighting.

(6) Germans used smoke for marking when it was observed our troops used smoke to mark fields for landing.

(7) More Horsas were observed to be crashed than CG 4A's.

(8) Enemy aircraft had similar stripe markings as ours.

(9) Driver of Allied tank observed killed by booby trap on dead German.

(10) 12 Horsas landed in a field covered with 3 feet of water safely without infury to personnel or damage to equipment. Water landing acted as good brakes.

(11) Some gliders were observed blown up by mines on landings.

(12) Enemy paratroopers were dropped on part of the landing zone.

(13) Many paratroopers com lained of too high altitude, approximately 1000 ft., and too fast speed on the drop.

(14) Concrete and wooden obstacles were in some of the good fields to prevent glider landings.

(15) Wooden and pa per bullets used by the enemy for close in fighting.

q. Organization of glider echelons:

(1) All units should be fully manned with personnel of the glider echelon and not have some units without any glider personnel with other units carrying an overage. This will effect:

(a) Full utilization of grades and ratings authorized for glider personnel in each unit.

(b) Better morale and "Esprit de Corps".

(c) Development of leadership and unit.

(d) Greater flexibility in employment.

(e) Less supply problem.

(2) Whenever one unit is committed to more than one glider lift, another echelon can be detached intact with equipment from parent unit and attached for duty to unit committed for more than one lift. In the past they have been attached as so many bodies breaking up all semblance of organization, creating greater supply problems, and hurting morale by their being assigned to fly with pilots of other units with whom they have no acquaintance.

r. Two plane equipment: To insure that gliders reach landing zone, conserve aircraft, and help the morale of crews of unarmed combat tow planes, the C-47's should be equipped with self-sealing gasoline tanks.

s. Morale: More rank and authority for promoting Flight Officers to Second Lieutenants should be obtained. Proper recognition for a hard and hazardous job well done should be given. A lowering of morale has been noted in some units because glider pilots felt they should not have been committed to land Horsas in small fields with high obstacles and committed to land in hours of darkness when schedules and operations would from indications have been possible to change for either an after dawn or pre-dusk landing.

As soldiers they will obey orders, but they should be given any breaks possible.

t. Approximation of gliders loads delivered:

(1) From reports studied the following figures were taken:

HORSA GLIDERS: 116 Reports

Safe Landing	Crash Landing	Landings Having Injured
45	71	29

Approximately 61% crashed, and 41% of crashed Horsas had injured personnel.

WACO(CG-4A) GLIDERS: 81 Reports

Safe Landing	Crash Landing	Landings having Injured
52	29	10

Approximately 35% crashed and 34% of crashed Waco's had injured personnel.

*Note: Safe landings includes those that landed without hitting obstacles, but washed out gears on ridges, etc. Crash landings included the injuries of personnel.

Status of glider pilots of 53rd TC Wing as of 14 June 1944 that participated in glider operations:

Glider pilots killed	12	Approximately 80%
Glider pilots wounded or injured	61	returned to bases and hospitals.
*Glider pilots unknown	159	
Glider pilots returned	621	
Total on Mission	856	

*Several glider pilots stated they intended to stay and

fight with airborne troops. A good number are known to be killed by ground fire after safely landing gliders, either in the glider, or either in ground action. Most seriously wounded will be held by Hospital Evacuation units on beaches both sides of channel until condition improves before moved to rear hospitals.

(2) Reports indicate approximately 70% of personnel and equipment landed in usable condition, but a good deal of this was lost to ground fire after landing.

u. Reclamation and evacuation of gliders.

(1) All reports seem to indicate that due to crash landings and later ground action a very low percent of the gliders can be evacuated.

(2) If present supply of gliders will fulfill all committments no effort should be made to evacuate gliders from continent to England.

(3) Once area is secured and airdromes built in that area, service teams can reclaim and evacuate to airdromes in the continent.

v. Aerial Pickup:

(1) No apparent use could have been made of aerial pickup to date.

(2) They will be great aid in reclaiming gliders once area is secured.

WILLIAM H. TA
Major, Air C

#149

ADDITIONAL GENERAL INFORMATION ON FRENCH INVASION

Majl Taylor(Glider officer in Burma, later mover to Gen Williams Hdq. for invasion) estimates that approximatel 50% of the resupply went to the enemy because of poor communications between Troop Carrier Command and the areas occupied by our advance forces (objective areas).

The main reason for the use of the 102 Gliders on D-1 was to carry 57 aanti-tank guns to the objective areas.

The parachutists were given specific missions to accomplish. Upon landing they departed to accomplish these missions. The result: no perimeter defense for the dropping and landing zones. This left landing gliders especially vulnerable.

Originally, the evacuation and salvage of gliders was left to the Air Service Command. When asked what they were going to do, after the invasion; it was learned that no plans had been made. Gen. Williams went to France to see What could be done. A few salvage crews were sent in but it was found that the gliders had been ruind by the battle passing over them, the civilians, and the allied troops. To date no gliders had been retrieved. No areal pick up was used.

One of the training errors made was that gliders were always flown empty in training. It was found that the loaded gliders stalled about ten to fifteen miles an hour faster than empty ones. The result: many gliders actually stalled out just before landing and during the landing and caused several crashes.

It was learned that the gliders pilots clothing was inadequate and it was suggested that a suit be designed for them that would be similar to the suit of the parachutists so that they would have pockets in which to carry arms grenades etc.

It was further learned that glider pilots were not properly armed. Pilots of supply gliders could not protedt them with only their @erands. It is now recomended that one pilot be armed with an automatic weapon of some kind and the other be armed with the carbine. Grenades as issued were very satisfactory.

This time(as in Sicily) there were no oblique pictures taken of the objedtiv e areas. It was found that they were needed and should always be used.

It is now estimated that 1000 Ft. is the best altitude for night operations. The reason: Planes cannot actually get down on the deck at night time and as a result they remain at about 100 to 300 ft. This is best rainge for small arms fireing at planes. It is reckomended that they used 1000 so that they will be out of the range of the small arms but still low enough so that the heavier anti-aircraft cannot be brought to bear on them.

It was found that the glider pilots needed more training in ground tactics. it was also found that the air borne crews needed more training. Esp. in lashing etc. It has been said that when they came out to load up they did not know how to load their equipment or how to lash it down.

Returning glider pilots reported that the germains were using wooden and paper bullets as defense against our airborne troops. This was done so that the germans could fire upon our troops XXXX and their bullets would expend themselves before they crossed our areas and reached more German troops.

Out of 2200 gliders troops used; 1800 were formed and organized and ready for combat within two hours.

Operations Data

4.5% of the Airbornes and Glider troops were killed durinig the landing period(this was attributed to crashes and to enemy fire)
12% of the troops and pilots were injured
83.5% were ready for combat
75% of the equipment was ready for combat
8.8% sustained slight damage in landing
The rest of the equipment is presumed to have been totally damaged or to have been lost.

89% of the Horsas were wrecked in the landing
50% of the CG 4A'S were wrecked in the landing

2.2 flying hours was the average per glider

292 CG 4A gliders used
220 Horsa gliders used

There were approximately 20 Hamilcar Gliders used in French Invasion. When the crew backs the tank into the Hamilcar, they have to stay into the tank as there is not room for them tol get out. Consequently, when the gliders landed the crews were in and ready to go. In some instances the motors were runing and so the tanks were in battle seconds after the glider landed. It is thought that the average time that it took the tanks to get into action is about twenty minutes.

The British 6th Airborne dropped 6 pounders and anti-tank guns and ¼ ton trucks by parachute. Guns were reported to have knocked out 50 tanks in the first ten minutes of the battle.

#149

BREAK DOWN OF TROOP CARRIER AIRBORNE OPERATIONS - FRENCH INVASION

1.	REPORT OF SIGNAL COMMUNICATIONS OPERATION "NEPTUNE"		TOP SECRET
2.	REPORT - PATHFINDER SCHOOL	13 June 1944	SECRET
3.	TROOP CARRIER COMMAND TRAINING PROGRAM FOR OPERATION "NEPTUNE"	14 June 1944	CONFIDENTIAL
4.	FIELD ORDER #8 EXERCISE "EAGLE"(Practice)	7 May 1944	SECRET
5.	STATISTICS IX TCC(Personnel, Aircraft, flying, etc.	13 June 1944	
6.	LETTER "REPORT OF OPERATIONS 'NEPTUNE'"	13 June 1944	TOP SECRET
7.	SUMMARY OF TROOP CARRIER MISSIONS - OPERATION "NEPTUNE"	6-7 June1944	TOP SECRET
8.	FIELD ORDER #1 IX TCC	31 May 1944	NEPTUNE BIGOT TOP SECRET
9.	ANNEX #12 to 9th AF TACTICAL PLAN IX TCC TACTICAL PLAN FOR OPERATION "NEPTUNE"	5 May 1944	TOP SECRET

Troop carrier sect
Combat operations

149

AIR INTELLIGENCE CONTACT UNIT
Hq. AAF Distribution Station No. 1
Atlantic City, N.J.

25 November 1944

RESTRICTED

DO NOT RETURN TO LIBRARY

Subject: Airborne Operations

By: Col. Joel G. O'Neal, Asst. Chief of Staff, Air Inspector

Theater: ETO

Organization: Hq. 9th T.C. Command, 1st Allied Airborne Army

1. The development or a means by which supplies and airborne troops can be dropped with bombing precision and accuracy is essential to future airborne operations. This was established beyond any peradventure of doubt during the Arnheim (Holland) operations. The widespread dispersal of equipment and reinforcements for the "Red Devil" division attempting to seize Arnheim was in great measure responsible for the allied defeat at this key position in the Low Lands.

2. It is my belief, based on evaluation of the action around Arnhaim, that this Nazi bastion could have been won if it had been possible to drop heavier equipment to the embattled British troops. With more powerful and numerous field pieces, the vital bridge across the Meuse (Maas) River might well have been held despite the overwhelming disparity in the number of enemy troops as compared with the Allies. The short and the long of the situation at Arnheim was that the Allies were forced into a position of attempt to match heavy artillery with small arms fire. Artillery of all sorts is not only essential but an absolute requisite to the success of any operation similar to the attempt to force the Arnheim position. Heavier support for airborne units should be made an absolute "must" for any and all future attempts of the Arnheim stature. If present planes are incapable of carrying the equipment required for such a thrust against the enemy, it would then naturally follow that the answer is to develop planes which will.

3. In line with the urgency of dropping supplies and equipment on a pin-point basis, it has been determined that such material discharged from the sides of aircraft, in the vast majority of cases, do not drop on the areas where they are required. This extends to the point of some supplies being delivered, not to the Allies, but to the enemy. The chief problem regarding disposition of supplies which are parachuted to our forces seems to be one of aerodynamics which cannot be corrected merely by good navigation, pilotage or attempts at precision dropping. It is recommended that serious study be given to the possibility of developing planes, intended for use in airborne operations, which can be unloaded from the tail. My personal belief is that considerably greater accuracy--again because of the

RESTRICTED

aerodynamic problems involved--could be obtained through the proposed tail unloading assembly, both for equipment and combat troops.

4. It is worth mentioning that, during the unsuccessful Allied attempt to smash German resistance at Arnhem, considerable success was attained in the dropping of supplies by B-24 aircraft. This was due to the fact that such supplies could be dropped from the bomb racks, and, therefore, it was possible to "plant" the supplies much as bombs are dropped. The area covered by supplies which were discharged from bomb racks was much more restricted and limited than was the case when the supplies were dropped from the sides of the planes.

5. The para-racks in planes used for dropping troops and equipment have not come up to expectations and requirements. It has been shown beyond shadow of doubt that successful airborne operation depends upon instantaneous release of both troops and supplies. I highly recommend that every effort be made towards the development of a quicker release system for aircraft supporting airborne units. The slowness and sluggishness of the present release causes dispersion which can be only advantageous to the enemy. It is entirely possible, in my opinion, to devise special bomb bays on planes engaged in airborne activities.

6. All troop carrier planes should be equipped with self-sealing gas tanks. Without this equipment, such as in the case of planes now engaged in troop carrier activity, even rifle and pistol fire from the ground has proved effective. There are several authenticated cases of troop carrier planes being brought down by small arms fire. The pilot's and co-pilot's positions in Troop Carriers should have armor plate protection.

Situation date: Sep 42 - Mar 43 and Sep 43 - Oct 44

STATUS OF AIRCRAFT AND CREWS
IX TROOP CARRIER COMMAND

as of 1700 hours
8 June 1944

	Aircraft	Crews
50th TC Wing		
439th Group	83	88
440th Group	65	69
441st Group	77	77
442nd Group	69	61
	294	295
52nd TC Wing		
61st Group	59	79
313th Group	60	67
314th Group	44	78
315th Group	71	69
316th Group	81	80
	315	373
53rd TC Wing		
434th Group	72	81
435th Group	55	71
436th Group	65	72
437th Group	81	84
438th Group	78	81
	351	389

[redacted]

SUMMARY OF TROOP CARRIER MISSIONS

6, 7 June 1944

MISSION	Flight Serial Nos.	TC Units	A/C Committed	A/C Dispatched	GLIDERS Dispatched	A/C Losses	REMARKS
Pathfinder A/C to establish navigation aids in DZs for 82d and 101st A/B Div.	1-6	PF Gp	20	20		1	Good drops. Navigation aids delivered to prescribed area-meager, light SA fire. 1 A/C ditched, crew reported picked up by friendly destroyer. Over target 0016 to 0202 D-Day.
Albany-TC A/C to deliver paratroops of 101st A/B div to 3 DZs	7-16	50th & 53rd TC Gps	432	432		12	2 sticks of A/B personnel returned. 1 A/C lost formation in clouds and finally returned to base, the other A/C made 2 passes over DZ, but A/B personnel refused to jump. Drops were good, in or near vicinity of DZs. Some "T"s were not observed in which case Radar was employed. Over LZ 0043 to 1415 D-Day.
Boston-TC A/C to deliver paratroops of 82d A/B Div to 3 DZs	17-26	52nd TC Gp	369	368 *See remarks		8	No A/B personnel stick returned & 1 dropped on 2nd pass at DZ. Drops reported accurate and good. Either "T"s or Eureka were in operation for all serials. Over LZ 0146 to 0239 D Day. -Explosion in pararacks caused critical injuries to several paratroopers and prevented transfer of this stick to another A/C before take-off.
Chicago-1 TC Gp to tow gliders, carrying paratroopers, supporting weapons, of 101st A/B Div	27	434th TC Gp, 53rd Div Hq Sq	52	51 *See remarks	51 CG-4A	1	All gliders taking off were delivered to LZ. Landings were made during darkness. Subsequent photos indicate large % of gliders were intack on LZ area. Landings were too dispersed. Over LZ 0354 D Day. *1 glider failed on T-O and time element prevented transfer of load to another glider.

MISSION	FLIGHT SERIAL NOS.	TC UNITS	A/C Committed	A/C Dispatched	Gliders Dispatched	A/C Losses	Remarks
Detroit-1 TC Gp to tow gliders, carrying paratroopers supporting weapons Div Hq of 82d A/B Div	28	437th TC Gp 53rd Wg	52	52	52 CG-44	1	All gliders delivered to target area. 4 gliders were released about 3 miles short of LZ. 1 glider cut loose on take-off, but was replaced and joined serial. Over DZ 0404 D-Day.
Keokuk-1TC Gp glider mission supporting 101st A/B Div w/arty, vehicles and signal supplies	29	434th TC Gp 53rd Wg	32	32	32 Horsa	0	All gliders delivered LZs marked with smoke and Eureka Ch. No. 14 encountered. Arrived at LZ 2053 D-Day.
Elmira-4 TC Gps glider mission supporting 82nd A/B Div w/arty, signal medical and Engr units	30-33	53rd Wg 176	177 -See remarks		36 Horsa 140 CG-44	6	All A/C losses believed to have occurred at LZ or enroute back. Therefore all gliders estimated delivered at LZ. 2 A/C believed ditched, 4 others missing. Considerable light SA in vicinity of LZ. Arrived at LZ 2104 to 2250 D-Day. -Extra A/C delivered stick of paratroopers returned from Albany mission.
Glaveston-2 TC Gp glider mission supporting 82nd A/B Div s/Inf. Arty Engr & Vehicles	34-35	434th & 100 437 435th Gps 53rd Wg	99		17 Horsa 82 CG-4A	0	1 released on take-off. CG-4A No. 10 broke loose over FLATBUSH 13 men and crew OK. No AA encountered. Arrived at LZ 0700 D+1.
Hackensach-2TC Gp glider mission supporting 82nd A/B Div Inf. vehicles for prcht and supplies	36-37	439 & 100 441 Gps 50th Wg	101 *See remarks		30 Horsa 70 CG-4A	0	All gliders delivered. No AA encountered. Arrived at LZ 0855 D+1. + Serial commander added additional Pathfinder A/C.

MISSION	FLIGHT SERIAL NOS	TC UNITS	A/C COMMITTED	A/C Dispatched	GLIDERS DISPATCHED	A/C GLIDERS	REMARKS
Freeport-4 Gps supply drop for 82d A/B Div	38-41	52nd Wg	206	206 *See remarks	0	11	Low ceilings and local rain squals suddenly developed over central England shortly after take-off. 53 A/C became separated and returned to various bases. At least 140 dropped at DZ 1 mile NE Ste Mere Eglise. Scattered SA fire over beaches and DZ area. of missing A/C, only 1 crashed in UK. Some believed ditched and crews may be recovered. + 2 A/C damaged in taxi accident.
Memphis-2 TC Gps supply drop for 101st A/B Div	42-43	50thWG	126	118 *See remarks	0	3	Drop made on designated DZ at 0653 on D+1. Heavy SA fire over beaches and in route out from DZ. +1 A/C flat tire on take-off A/C committed reduced by 7 by more compact loading. 3 missing cause unknown.

Total number of sorties ———	1656
Total A/C dispatched on paratroop drop missions	822
Total A/C dispatched on supply drop missions	324
Total A/C dispatched on glider landing missions	510 (395 CG-4As, 115 Horsas)
Total losses of A/C after dispatched on mission	43 -- 2.5%

A large number of returning aircraft had been hit by small arms fire, however, casualties were few (only 1 death reported) In most instances damaged A/C were operational within 48 hours.

AIRBORNE OPERATIONS

Part I - Aspects in General

1. Definitions:

   (a) Airborne Forces

   (b) Air transported Forces

2. Distinctions and Technique

   (a) Powered a/c and parachute

   (b) Gliders

   (c) Powered a/c landing

   (d) Maintenance or re-supply by air

3. Examples of Airborne Operations in 1943

   (a) In Sicily

   (b) In Leros

   (c) In New Guinea

   Dispersion: V concentration.

4. Conclusion

   Air transport in relation to strategy is an extension of air power. Tactically airborne formations differ from normal formations principally owing to:

   (a) shortage of supporting weapons

   (b) restricted mobility by land

   (c) greater reliance on air situation and support

   (d) dependence on surprise and novelty

   These considerations and the vulnerability of transport aircraft render the use of conditions of low visibility normal for initial landings.

Part II - Overlord

1. Initial Set Up. Airborne Forces

   British - 1st. A/B Div.
   6th -A/B Div.
   U.S. -82nd A/B Div.
   101st A/B Div.
   S.A.S. Troops, etc.

2. Aircraft

   British - 38th Group T.A.F.)
   46th Group Transport Command) R.A.F.

   U.S. - 9th Troop Carrier Command

3. British Organisation

   Airborne Base, etc. (See Appendix)

4. Army and R.A. F. Responsibilities

   Army responsible for:-

   (a) Ground operational plan

   (b) Deciding who and what shall be carried in each a/c or glider.

(c) Deciding from Army point of view whether to proceed, postpone or cancel.

R.A.F. Responsible for:-

(a) Putting troops or equipment or supplies on the ground at the right time and place.

(b) Routing aircraft.

(c) Settling conditions of light required to find differing zones (D.Z.'s) or glider landing zones (L.Z.'s) and stating requirements for navigational aids at these zones which are operated by the Army personnel.

(d) Deciding from air point of view whether to proceed, postpone or canel.

(e) In addition to all aircraft and their fitting, R.A.F. provide and decide the pattern of:

(i) parachutes

(ii) containers, carried externally or in bomb bays

(iii) lashing down gear

(iv) radar in radio navigational aids and visual aids of peculiar or special design (flares, lights, etc.)

Joint Responsibility:-

(a) Time of dropping or landing

(b) Choice of D.Z.'s and L.Z.'s

5. British and U.S. Harmonisation.

6. Pathfinding.

7. Heavy Equipment:

(a) dropped by parachute

(b) carried in gliders

8. Air support.

9. The Plan: (6th A.B. Div.)

(a) Aims

(i) capture certain bridges and batteries

(ii) protect the left flank

(iii) delay evening reserves and reinforcements

(b) Method: Division to move in two echelons:-

(i) D-1/D night:
Two parachute bdes. Glider element curiosity of Div. Hqs.
One A/Tk Battery. One infantry Company - to drop or land between 0200 hrs - 0320 hrs.

(ii) D Day evening::
One airlanding brigade
Armoured Reconnaisance Regiment
Airlanding batteries and other Divisional troops all in gliders.

(iii) Resupply by drafting to begin during night D/D+1

10. Aircraft and Glider Allocation

11. Results:

(1) Bridges seized intact (Benouville & Ranville).

(2) Batteries captured and by morning all troops were established as planned except certain "sticks" of a para - bde which were dropped some 5 - 6 miles east of their D.Z.'s as owing to an error in navigation, the river Dives was mistaken for the Orne.

(3) Gliders landed on L.Z.'s fairly concentrated. Only two Hamilcars with 17 pdrs landed during the first night. They had difficulty in getting the guns out but were in action by first light. Of the remaining two, one came down in the Channel and one on the South Coast.

(4) The Armoured Reconnaisance Sqn in Hamilcar and Harsa gliders all landed before dark in the evening of D day in the space of 7 to 8 minutes. Besides Tetrarch (U.S. 8 ton T8) tanks, they had Rota trailers, Infantry carriers, slave battery carriers and jeeps. All tanks were out of their gliders in about ten minutes.

(5) Aircraft losses

(6) Subsequent operations.

12. U.S. Airborne Forces

Part III

The future with special reference to the war against Japan

1. Lessons learned from the operations of No. 1 U.S. air Commando with Wingate L.R.P.G.'s in Burma in March, 1944.

2. Relationship of various means of delivery parachute, glider, transport aircraft.

3. Value of combat types of aircraft to troop carrier formations.

4. The dropping of heavy equipment.

5. The employment of pathfinder forces.

6. Airborne forces in air opposed landing.

7. Air transported forces and their relationship to airborne forces.

8. Significant developments in technique:

(a) Glider pickup

(b) Helicopters

(c) Suspended landing and take off

9. The central of air support.

APPENDIX TO AIRBORNE OPERATIONS

Airborne Base

1. The Airborne Base is the organisation through which H.Q. Airborne Troops controls the despatch of Airborne Formations. It consists of:-

(a) Combined Command Post at which are the Advance Headquarters of:-

Headquarters Airborne Troops.
American Airborne Divisions.
38 Group and 46 Group R.A.F.
9 U.S. troop Carrier Command.

(b) Main Headquarters Airborne Troops.

(c) G.S.O.'s. 1(Air) at H.Q. 38 Group and 9 U.S. Troop Carrier Command.

Responsible for co-ordinating all points concerning allotment of aircraft to units and all matters needing adjustment between units and R.A.F. Command Airborne Liaison Officers and Airfield Control Sections on airfields used by their respective formations, and also G.S.O. 3 at 9 U.S. Troop Carrier Command Wing and R.A.F. Group H.Q.

(d) G.S.O'S 3(Air) and Staffs at U.S.T.C.C. Wing and R.A.F. Group H.Q.

Liaise with their respective Wing or Group H.Q. and Army Formations which are to be despatched from their airfields. Issue instructions to Airborne Control Sections or airfields as required by G.S.O's 1 (Air).

(e) Airfield Control Sections

One section at each airfield. In charge of a G.S.O.3 (Air) who is responsible for making all detailed arrangements in connection with despatch of airborne units from his airfield.

(f) Transit Camps

Transit camps with accommodation for 1,000 men sited near each of the eight departure airfields of 38 Group and 46 Group.

The Staff of each camp consisted of:-

Camp Commandant (Capt or Lt)	1
Batman Driver.	1
C.Q.M.S.	1
Storemen.	2
Cooks.	9
Dutymen.	12
M.T. Drivers	2
Clerks.	1
Telephone Orderlies.	2

M.T. was provided on the following scale for each camp:-

Lorry 3-ton.	1
Car 2-seater.	1
Water truck 15-cwt	1
Bicycles.	4

2. Moves from Transit Camps to Departure Airfields.

Units and formations moved into Transit Camps several days before D-Day where they remained segregated. The moves from Transit Camps to departure airfields were by M.T. Each stick of paratroops with containers travelled in one 3-ton lorry. Additional transport was also provided for marching personnel of airlanding units. In all, approximately 390 3-ton lorries were required for moves from transit camps to airfields.

3. 9 U.S. Troop Carrier Command Airfields.

Should it have been necessary to use airfields of 9 U.S. Troop Carrier Command, U.S. Forces were to be responsible for Transit Camp staffs and transport.

4. Communications.

There was direct landline communication from each departure airfield to Headquarters, 38 Group, who had under command 46 Group.

The airfields which were also to be used for re-supply had direct landline communicationto the various deumps (R.A.S.C., Ord, R.E. etc.). 38 Group had direct landline communication to the Combined Command Post and through Headquarters, 6 Airborne Division to Main Headquarters, Airborne Troops.

In addition, landlines were supplemented by motorcycle D.R.